

Recombinant DNA

The Recombinant DNA Controversy: A Memoir: Science, Politics, and the Public Interest 1974-1981, by Donald S. Fredrickson, 388 pp, with illus, \$39.95, ISBN 1-55581-222-8, Washington, DC, ASM Press, 2001.

WHEN BIOMEDICAL SCIENCE LOST ITS innocence, Donald S. Fredrickson, MD, was at helm of the National Institutes of Health (NIH). After 21 years doing research on plasma lipoproteins at the National Heart Institute and a brief stint as president of the Institute of Medicine, Fredrickson was called to lead the world's preeminent biomedical research institution just as it was being dragged into the scientific, public, and political furor over recombinant DNA research.

Within the next several years the relationship between science and the public would be transformed, and biomedical scientists would confront unfamiliar perplexities such as patents and proprietary commercial information. By the time Donald Fredrickson left the NIH, the landscape had changed, and he had played a crucial role in creating the new world of biomedical research. *The Recombinant DNA Controversy* is his account of that momentous time.

There are more heroines and heroes than villains in Fredrickson's memoir. He is effusive in his admiration for DeWitt "Hans" Stetten, deputy director for science at the NIH. Stetten's chagrined reaction to the decision to submit to the NIH Director's Advisory Committee the draft guidelines that would permit recombinant DNA research to recommence was "Oh, my God!" Fredrickson writes that Stetten feared "opening the gates to an unprecedented Philistine invasion." In this worldview, science stood apart from the public and politics. Any breaching of the walls threatened a cataclysm that would sweep away all that was beautiful and precious in science.

Fredrickson emerges as a skillful, smart, and ultimately sympathetic captain at the helm of US biomedical science in this time of tumult and challenge. He is first and foremost a scientist, deeply imbued with the values and perspectives of that profession, occasionally dismissive of those who challenge scientific prerogatives. Consider this

comment about Alfred Vellucci, then-mayor of Cambridge, Mass, a community that wanted to restrict recombinant DNA research at the institutions within its municipal boundaries, which happened to include Harvard University and the Massachusetts Institute of Technology: "Hizzoner had never been handed a cause that could raise him so high above the walls of the disdainful and privileged properties within his domain." But he also praises the Cambridge community: "They worked hard, learned much more about the NIH Guidelines than some scientists, and demonstrated they could participate in an important public process—just what we had been asking them to do."

Fredrickson was a tenacious political warrior, beating back ill-considered legislation and regulation (14 bills and resolutions in 1977 alone), dealing with an occasionally cantankerous scientific community, and steering the NIH toward a middle course between regulation and anarchy. The Recombinant DNA Advisory Committee, better known as the RAC, began as a group of scientific experts but rapidly morphed into a broader group with nonscientist members. The RAC drafted guidelines, reviewed protocols, and later perfected the genre of "Points to Consider" documents: informal guides to researchers, institutional review boards, and prospective subjects about new kinds of research such as gene transfer experiments in humans.

Another clash of cultures was erupting at the same time—between science, with its norms of openness and publication, and industry, which prized secrecy and intellectual property. By 1978 the RAC was being asked to review commercially sponsored projects—including proprietary information—at meetings closed to the public, making some RAC members deeply uncomfortable. Fredrickson describes this era as one of "uncommon disharmony or culture shock in reaction to the special requirements of industry." Not long before, Fredrickson as NIH Director had been asked by a senior official at Stanford University to issue a statement in support of the foundational patent application in

biotechnology, the Cohen-Boyer claim on “a process to produce biologically functional molecular chimeras. . . .” He describes “the patent” (scare quotes and all) as “a modestly seismic event, a nervous shift at the conjunction of the academic/not-for-profit and commercial tectonic plates sustaining the crust of the biomedical research enterprise.” Later he observes that “had the question been my view of proprietary rights in human genes, I would never have accepted it.”

The book is heavy with diary excerpts, memos, and the like, which do not always make lively reading. Nevertheless, by the end I found myself filled with respect and liking for this physician-scientist who helped shape national—and international—policy on recombinant DNA research and who had the intellectual breadth (and wry sense of humor) to understand that a new era was being born in which science would be in dialogue with and accountable to the public in ways veteran scientists like Hans Stetten might have found inconceivable. In this new era, biomedical science has not merely survived, it has thrived; more conflicted, sophisticated, and world-weary at times, but as vigorous and creative as ever. There is no better way to end this review than with the “Moral” Fredrickson himself offers:

When science makes moves that can be interpreted as threatening to the public welfare, it is proper and necessary for other citizens to provide the “turbulence” necessary to give them access to the full intent and meaning of the science.

So writes a wise man, who was in a centrally important role, at a critical time.

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